CLAIMS:

1. A light-control material, comprising in order, a surface layer oriented in a uniaxial direction, a center layer comprising a skeletal member and a plurality of cavities arranged at intervals and oriented parallel to the uniaxial direction of the surface layer, and a base layer.

2. The light control material of claim 1, further comprising a liquid crystal material at least partially filling the cavities.

3. The light control material of claim 1, wherein one or both of the surface layer and the base layer are substantially transparent to visible light.

4. The light-control material of claim 3, wherein the visible light transmittance of the liquid crystal material is at least about 70%.

5. The light-control material of claim 1, wherein each of the surface layer and the base layer comprise one or more electrodes adapted for application of an electrical potential to the liquid crystal material.

6. The light control material of claim 5, wherein the electrical potential is derived from an applied electric field oriented parallel to the uniaxial direction of the surface layer.

7. The light control material of claim 6, wherein the visible light transmittance of the liquid crystal material is at least about 70% when the electrical potential is applied to the electrodes.

8. The light-control material of claim 1, wherein each of the surface layer and the base layer comprise one or more of a glass or a resin.

9. The light-control material of claim 8, wherein each of the surface layer and the base layer comprise polymer films.

10. The light-control material of claim 8, wherein the surface layer comprises glass and the base layer comprises a polymer film.

11. The light-control material of claim 1, wherein the ratio of length:pitch of the cavities in the structure is in the range of about 1:1 to about 1:40.

12. The light-control material of claim 1, wherein the length of the cavity is in the range of about 50 to about 400 nanometers.

13. The light-control material of claim 1, wherein the width of the pitch is preferably in the range of about 100 to about 800 nanometers.

14. A method of manufacturing a light-control element, including:

providing a transparent surface layer oriented in an uniaxial direction, a center layer comprising a skeletal member, and a plurality of cavities arranged at intervals and oriented parallel to the uniaxial direction of the surface layer;

laminating the surface layer, the center layer and the cavities using a nano-imprinting method to form an optical structure;

laminating the optical structure a transparent base layer; and

adding a liquid crystal material to the cavities.

15. The method of claim 14, wherein the nano-imprinting method is selected from the group consisting of nano-embossing and radiation-cured nano-pattern imprinting.

16. The method of claim 15, wherein the radiation-cured nano-pattern imprinting is carried out using radiation selected from the group consisting of ultraviolet radiation, electron beam radiation, and infrared radiation.

17. The method of claim 14, wherein each of the surface layer and the base layer comprise materials including at least one resin.

18. The method of claim 17, wherein the resin is derived from a radiation curable chemical compound.

19. The method of claim 14, wherein lamination of the surface layer and the center layer to form an optical structure includes:

heating a first die to a temperature above the glass transition temperature of the base layer;

resin and pressing the first die against the base layer to fill the first die with the base layer material;

reducing the temperature of the first die to a temperature below the glass transition temperature of the base layer resin;

separating the base layer material from the die to form a plurality of cavities arranged at intervals on the base layer;

heating a second die to a temperature above the glass transition temperature of the surface layer resin, filling the second die with the surface layer resin and pressing the second die onto the base layer;

reducing the temperature of the second die to a temperature of below the glass transition temperature of the surface layer resin;

separating the second die from the surface layer resin to form an optical structure wherein the skeletal members and the cavities are arranged at pre-determined intervals and oriented in at least the uniaxial direction of the surface layer.

20. A light-control material, comprising:

a surface layer that transmits light;

a base layer that transmits light; the base layer being laid above the surface layer;

a liquid crystal that is arranged with one layer between the surface layer and the base layer; and

skeletal members that are arranged in the liquid crystal, the skeletal members being oriented parallel to the uniaxial direction of the surface layer so that cavities are formed between each skeletal member, wherein the skeletal members forms a lamination structure in the liquid crystal.

21. A light-control material according to claim 20, wherein a plurality of the lamination structure are formed with the skeletal members in the liquid crystal, the skeletal members arranged in one lamination structure have different uniaxial direction of the surface layer from the other skeletal members which are arrange in other lamination structure.

22. The light-control material of claim 20, wherein the light-control material comprises a vehicle window glazing.

23. The light-control material of claim 20, wherein the light-control material comprises a window glazing.